

REMARKS

This response is submitted in reply to the Office Action mailed on September 26, 2006. Claims 1-25 are pending in the patent application. Claims 2, 4 and 8 have been amended. No new matter has been added by this response.

The drawings are objected to under 37 C.F.R. § 1.83(a) because the Examiner states that the drawings do not show certain of the claimed elements. Specifically, the Examiner states that the phrase “temperature-sensing circuit” in Claims 1-3, 8-9 and 11; the term “circuitry” in claims 2 and 4; the term “RC circuit” in claim 3; the phrase “temperature response means” in claims 18 and 19; and the phrase “send temperature” in claims 22-23 and 25, must be shown in the drawings or cancelled from the claims. Applicants submit that these elements are sufficiently described in the drawings and/or the specification and therefore there is sufficient support in the application for these claim terms.

The “temperature-sensing circuit” of claims 1-3, 8-9 and 11 is described in the specification at page 6, lines 3-13. Furthermore, the drawing shows a circuit including resistor 30, diode 31, resistor 32, thermal switch 33, and brightness control switch 34. As stated in the specification when the new temperature of the lamp reaches a pre-determined temperature level, the thermal switch 33 opens to disconnect resistor 32 reducing the brightness of the lamp and thereby the temperature of the lamp. Thus, this circuit senses the temperature and then controls it accordingly. The “circuitry” described in claims 2 and 4 is also supported by the drawing and specification and specifically by resistor 30, diode 31, resistor 32, and switches 33 and 34. These components form the circuitry of the temperature-sensing circuit.

The “RC circuit” of claim 3 stands for Resistor-Capacitor circuit, which may be in series or in parallel. As shown in the drawing, the timing circuit 22 includes an RC circuit identified by resistor 27 and capacitor 23. The RC circuit is therefore shown in the drawing.

The “temperature-response means” in claims 18 and 19 refers to resistor 30, diode 31, resistor 32, and switches 33 and 34, which make up the temperature-sensing circuit. These components respond to the sensed temperature and adjust the brightness level of the lamp accordingly. Applicants therefore submit that there is adequate support for the phrase “temperature-response means.”

In the Office Action, the Examiner states the phrase “send temperature” in claims 22-23 and 25 is not shown in the drawings. Applicants believe that the Examiner is referring to the phrase “sensed temperature” in these claims. Applicants will therefore address the rejection of this phrase. The phrase “sensed temperature” is supported in the specification at least at page 6, lines 3-13. Furthermore, Applicants have amended the specification to clarify that the temperature of the lamp assembly described in line 5 on page 6 is the “sensed temperature.” Applicants submit that there is adequate support for the phrase “sensed temperature” in the claims and page 2 of the specification.

For at least these reasons, Applicants respectfully request that the objection to the drawings be withdrawn.

Claim 8 is objected to because of an informality. Specifically, the Examiner states that the term “a lamp” at line 4 of claim 8 should be changed to “the lamp.” Applicants have amended claim 8 accordingly.

Claims 2 and 4 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the Examiner states that the term “circuitry” in these claims is not clear. Applicants have amended the term “circuitry” in claims 2 and 4 to be “impedance altering circuitry.” Applicants submit that the amendment to claims 2 and 4 overcomes this rejection.

Claims 1-3, 6-8, 12, 18, 20-23, and 25 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,012,392 to Hochstein ("*Hochstein*"). Applicants disagree with and traverse this rejection for the following reasons.

Claim 1 is directed to a drive circuit for a lamp that includes an electronic switch connected in series with a lamp in a source of DC voltage and also has a control input terminal. The drive circuit includes a pulse-width-modulation or PWM control circuit having an input that is connectable to the source of DC voltage and an output that is connected to the control input terminal of the electronic switch for varying the lamp brightness in proportion to the PWM duty cycle. Specifically, the control circuit includes a temperature-sensing circuit for reducing the PWM duty cycle when the lamp temperature exceeds a designated or predetermined temperature. *Hochstein* does not disclose or suggest such subject matter.

Hochstein is directed to an automatic battery powered video light and includes a light sensor 36 that senses the ambient light from a scene or subject 14 and adjusts the lamp brightness to compensate for varying ambient light levels. (Col. 3, 40-44). The Examiner states that *Hochstein* discloses a control circuit that includes a temperature-sensing circuit that reduces the PWM duty cycle when a lamp temperature exceeds a predetermined temperature. The Examiner specifically states to a portion of *Hochstein* which states the following:

The pulse-width-modulator 40 yields the given pulse width ON time for a given scene brightness. The photosensor 36 then either increases or decrease [sic] this ON time pulse width in response to the sensed scene 14 brightness. Pulse width modulation control of a lamp 20 not only greatly extends battery 16 operating time, but increases lamp 20 life by reducing the length of time that the filament has to run at extremely high temperatures. (Col. 5, lines 6-13).

Based on this paragraph, *Hochstein* discloses that adjusting the ON time pulse width based on the brightness also helps to improve the life of the lamp because the time that the

filament has to run on extremely high temperatures is minimized. *Hochstein* does not disclose or suggest that its circuitry senses the temperature of the lamp and then adjusts the PWM duty cycle accordingly when a designated or predetermined temperature is reached.

For example, according to *Hochstein*, a lamp may be on a brighter setting for a period of time because the lamp is being used in dimly lit conditions where more brightness is needed. In such a circumstance, the temperature of the lamp may be very high because the brightness of the lamp is increased. The lamp in *Hochstein*, however, would remain at this brightness setting regardless of the lamp temperature. Whereas in the claimed invention, the control circuit reduces the PWM duty cycle to decrease the brightness when the lamp temperature exceeds a predetermined temperature.

As a further example, if the lamp were in an extremely bright and hot area such as a desert, the claimed invention would adjust the brightness of the lamp when the temperature of the lamp exceeded the predetermined temperature (the combination of the temperature of the lamp itself and the ambient temperature). In contrast, according to *Hochstein*, the brightness of the lamp would not be adjusted at all because of the very bright ambient conditions, regardless of the lamp temperature or the ambient temperature.

Accordingly, the claimed invention senses temperature and controls the brightness when the sensed temperature exceeds a predetermined temperature regardless of the brightness of the surrounding environment. In contrast, *Hochstein* controls the brightness of the lamp based on the sensed brightness of the surrounding environment, regardless of the lamp temperature.

For at least these reasons, Applicants submit that claim 1 and claims 2-7, which depend from claim 1, are each patentably distinguished over *Hochstein* and in condition for allowance.

Claims 8, 18, 22, 23 and 25 include similar subject matter to claim 1. Specifically, each of these claims includes a device or step for sensing the lamp temperature and then reducing the duty cycle of the pulse width modulation in response to the sensed temperature when the sensed temperature exceeds a designated or predetermined temperature. As stated above, *Hochstein* does not disclose or suggest such subject matter. Accordingly, Applicants submit that claims 8, 18, 22, 23, and 25, and the claims which depend therefrom, are each patentably distinguished over *Hochstein* and in condition for allowance.


Claims 4-5, 9-11, 19 and 24 are objected to as being dependent upon a rejected based claim but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Applicants acknowledge that these claims are directed to allowable subject matter. Applicants, however, are not rewriting these claims at this time because Applicants believe that claims 4-5, 9-11, 19 and 24 are allowable for the reasons provided above with respect to claims 1, 8, 18 and 23.

In light of the above, Applicants request that claims 1-12 and 18-25 be deemed allowable at this time and a timely notice of allowance be issued in this case.

No fees are due. If any fees are due in connection with this application, the Patent Office is authorized to deduct the fees from Deposit Account No. 19-1351. If such withdrawal is made, please indicate the attorney docket number (25493-459900) on the account statement.

Respectfully submitted,

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